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ABSTRACT

Based on two quilting minicourses conducted by the author with students from grades 7 through 10, this curriculum guide provides interdisciplinary objectives, student activities, and teaching procedures for a unit in which the rudiments of quilting are taught and practiced. Contents include (1) a list of objectives and concepts under headings of language arts, mathematics, social studies, and art, (2) background information in quilting, (3) student activities listed under quilting math, language arts (definitions), social studies (history and spread of quilting), art, and tie-dyeing, and (4) material needed for quilting. (HD)

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ED132270

# Patchwork Quilts

Developed at The Mountain School, a project funded under Title III of the Elementary and Secondary Education Act, 1974-75.

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by **Richard Frioks**

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## INTRODUCTION

This is a survey of two quilting mini-courses conducted by the author with students from grades seven through ten. The rudiments of quilting were taught and practiced.

The survey includes material selection and dying, pieced traditional blocks, blocking, stretching and quilting. The skills necessary for doing all these flow into all parts of the students' lives — now and in later life. With quilting as our subject, the students and their teacher were able to cover a variety of academic skills. (This process of 'milking' is called orchestration; that is, making the most of what one is doing.)

To orchestrate any idea the teacher or teachers must sit down and think out how many things can be learned, how they are best learned, and foremost, why teach this? why are we doing this?

Quilting is an ancient art brought to the West from the Middle East via trade and the Crusades. As it was introduced into the countries of the West, each area adapted the art to its needs — England and the northern countries adapted the quilt for practical purposes of warmth and cover; in France, applique was developed extensively; and in Spain and Italy, thin, finely quilted materials were decorated for use in the Church. In America, the settlers soon found their knowledge of quilting a necessity because of the lack of commodities and because of the need for home industry. The 'baker's dozen' became the legacy of many American brides. Today quilting is becoming a popular pastime for many. And, also, quilting is recognized by many as the fine art it is — the craft of turning waste into a thing of beauty which is both practical (cover and warmth) and lovely to behold (intricate patternings).

This legacy is a worthy one for the children of today.

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## CONCEPTS

**Language Arts** Language arts skills are increased through vocabulary study of quilting terms; research and reading of books and articles on quilting; writing of a diary (log) from beginning stages to finished product.

**Mathematics** Quilting activities can provide the base for a basic course in applied geometry; a means of teaching basic geometric terms; square inches and feet; basic shapes and the possibilities for producing these shapes from a square.

**Social Studies** A study of quilting will involve map work; investigation of origins of quilting and its spread; mapping the quilters in a given area; study of various covers and coverlets from around the world; tracing each item used in quilting back to its geographic source.

**Art** The quilting mini-course involves design; applied use of the various crafts developed by quilters; adaptation of traditional patterns; color study.

**Over-All, Physical and Mental** Quilting teaches fine eye-hand coordination; control of body overflow in creative ways; organization of leisure time; cooperation among peers (quilting bee); teaching use of 'waste' materials -- making something out of nothing.

## OBJECTIVES

- To increase vocabulary by mastering and spelling quilting terms
- To understand the development of quilting and the role that geography and history played in the development
- To increase skill in the use of geometric shapes and basic mathematics
- To increase awareness of design possibilities
- To develop fine hand-eye coordination through the use of quilting stitches
- To appreciate the art of turning waste materials into functional, beautiful objects

## ACTIVITIES

### Language Arts

The student will

- spell the quilting vocabulary list.
- employ the quilting vocabulary list in his work as the quilting progresses by pointing out and naming the various items.
- keep a daily log of his work complete with sketches from day one to the completion of the quilt.
- read from selected books and articles on quilts.
- write all his reports and his log in an approved format.

### Mathematics

The student will

- master the terms (concepts) -- *Point, Line, Plane* and will demonstrate his mastery by pointing these out in one of his designs and by working problems using these.

- identify the parts of his block pattern as to set.
- identify the basic shapes of *triangle*, *square* and demonstrate the two right triangles in a square by cutting.
- by measuring, prove  $3'' \text{ sq} = 3'' \times 3''$  and will learn the notation for such.
- demonstrate his mastery of these  $A = l \times w$  and  $A = s^2$  by cutting and measuring and by substitution in these formul.

### Social Studies

The student will

- identify the major oceans and the continents by pointing them out on a map.\*
- trace the spread of quilting on a world map.
- identify the various quilting styles: decorative applique from warmer areas, pieced quilts from colder areas.
- trace each material used in quilting to its original geographic area or source.
- in conjunction with a small group of students, survey the quilters of the area and plot them on a map of the area.

### Art

The student will

- design and execute his own quilt block pattern.
- use the hemming and running stitches in piecing the quilt and in quilting.
- distinguish and execute some figure-ground variations on traditional blocks; such as, Cross-and-Crown and Goose Tracks.
- practice the transferring of design by the block-enlargement process.
- participate in the quilting of an entire quilt.
- tie and dye pieces of material for the quilt.

\*From this teacher's work with junior high and high school students, this objective *cannot* be taken for granted — a majority of students could not do this when asked. With little effort the teacher could provide the students with templates (patterns cut from heavy poster board) for the continents, the student could then trace these onto various cloth samples, cut them out and glue them on a piece of blue construction paper in the appropriate places.

## BACKGROUND INFORMATION ON QUILTING

Any item made from three layers (cloth, filler, cloth) and sewn to hold all three layers together is a quilt. Quilting serves one purpose -- the thread holds the three layers together so that they do not separate. Quilted items have traditionally been used for warmth or for padding. Apart from these utilitarian functions, the quilted items, top and bottom, were decorated. It is this decoration, in the form of applique, patchwork or quilting design, which is of prime interest today. As homes have become better insulated and more efficiently heated, the utilitarian function of the quilt has become less important, and the aesthetic function has grown in importance. However, the functions of padding and warmth via quilted material is still in evidence in many garments.

On cold nights, it was not uncommon in this country to find children nestled all snug in their beds under five to ten quilts. When one considers the layers involved -- say ten quilts of three layers each or thirty layers -- one sees that not only was warmth provided, but such a burden enforced stillness and sleep if not suffocation.

The Persians were probably the originators of the craft of quilting. The West adapted quilting for completely practical purposes. Heavy armor necessitated padding, and new climatic conditions (Europe became much colder with longer winters) invited the newly imported craft for warmth.

As quilting spread throughout Europe, various countries and courts adapted it to suit their needs. It was, however, in the British Isles where the traditional patchwork quilt had its beginnings. In the British colonies of North America the craft reached its fullest development, combining both practical and decorative aspects of the quilter's art. It was in the American wilderness that quilting became a family pastime and community affair. Quilting offered its participants several gifts. Quilting bees were informal democratic societies discussing politics, religion, family life and varied gossip. They also produced a product so that these gatherings were formalized in tangible form -- the quilt. This quilt became the property of the family through the bride-to-be. Along with the quilts came the knowledge of the craft. Thus an intelligent and frugal craftswoman could keep her family warm, visit with her friends, beautify a rather crude and barren life-style and occupy her idle hours with the piecing of scraps.

The quilts of America offer us some of the most beautiful and original documents of American life.

# STUDENT ACTIVITIES

## Quilting Math

Definitions you should know.

**Set:** a set is a collection or group of things.

**Element or member of a set:** each thing in a set is called an element or member of the set.

**Point:** a location in space without width, length or depth.

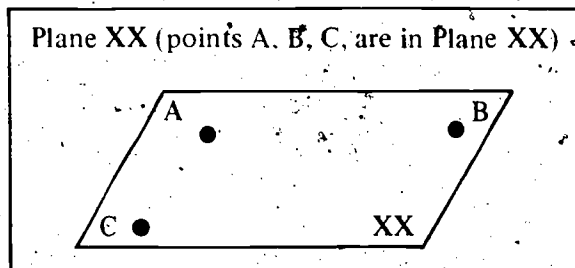
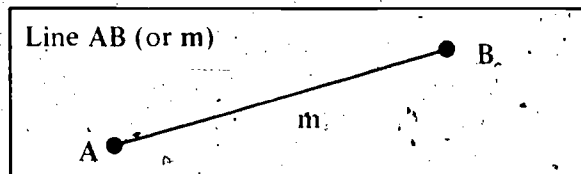
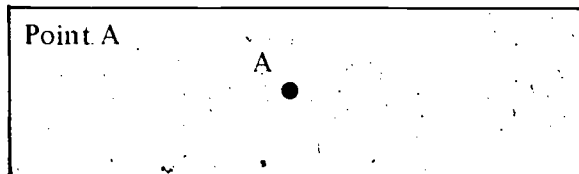
**Line:** a set of points.

**Plane:** also a set of points, but with no beginning or end, it is two-dimensional, it defines a space.

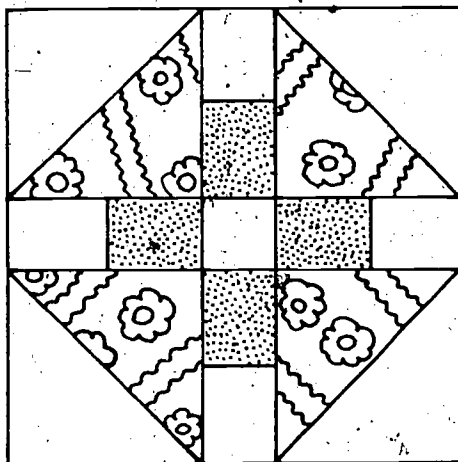
**Space:** a set of points, infinite, without beginning or end. Points and planes are located in space.

**Geometry:** measurement of space.

Geo = world      Metry = measurement of



Here is a block pattern for a quilt. The pattern is Churn Dash. Tell the number for each set below.



A. = \_\_\_\_\_

B. = \_\_\_\_\_

C. + = \_\_\_\_\_



Do the same, only this time define each set by shape; draw the shape in the first blank and put the number in the second by each letter below;

A. \_\_\_\_\_ = \_\_\_\_\_ B. \_\_\_\_\_ = \_\_\_\_\_ C. \_\_\_\_\_ = \_\_\_\_\_

How many elements do you need for the entire block? \_\_\_\_\_

How many triangles are needed? \_\_\_\_\_

Look at the pattern (the block drawn above). See if you can draw it without too much measurement below.

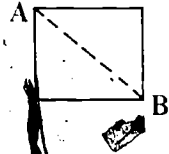
Refer to the Churn Dash Pattern.

The triangles are congruent, they are the same size, they are right-angle triangles. What is the number of large squares? \_\_\_\_\_ Each square is made up of \_\_\_\_\_ Can you formulate a statement explaining this?

\_\_\_\_\_

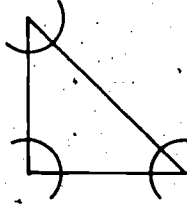
\_\_\_\_\_

Take a square of paper. Measure the sides to make sure all are the same. With a pair of scissors cut from corner A to corner B. (It might help to fold the paper along this line before cutting.)



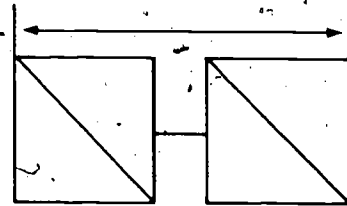
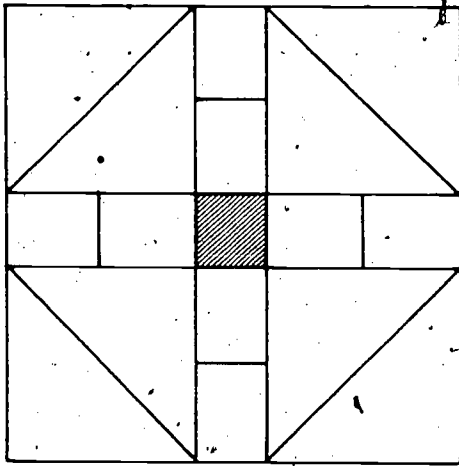
You have made two \_\_\_\_\_

TRI = 3




3 angles

A right-angle triangle forms an 'L'. A square has four right angles. A right angle has  $90^\circ$ . See if you can make up a block using only right angle triangles. Shade in to show the layout of the pattern.

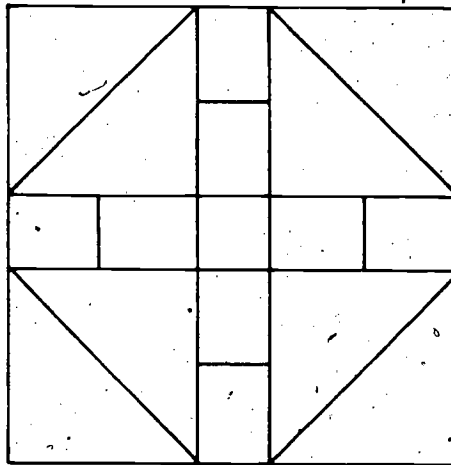


The block for a regular-size quilt is 14" x 14", or 14" sq. If the square in the center is 2" sq. (2" x 2"), how many inches are left for each large square? The large squares are made up of two triangles.

Another way to state this is:

Given  = 2" sq

and

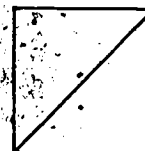


= 14" sq,

find the area of

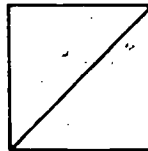


Or,



= \_\_\_\_\_

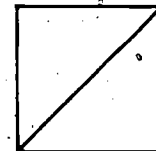
Fill in the blanks



+



+



=

\_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

Add the small squares. How many square inches?

Add the large squares. How many square inches?

Be sure all your totals add up to 14" sq (said 'square inches')

## Area

To square something multiply it by itself.

$$4^2 = 4 \times 4 = 16$$

Area equals length times width.  $A = l \times w$

If a square, sides squared.  $A = s^2$

$$A = s^2 \quad A = l \times w$$

Find these areas:

1. Area = \_\_\_\_\_ Length = 13" width = 4"

Set up the problem like this.

$A = l \times w$  (formula for finding area of a rectangle)

$A = 13" \times 4"$  (substitute what is given)

$A = \underline{\hspace{2cm}}$  (solve by multiplying)

2. One side of a square is 15 inches, what is the area in square inches?

$$A = s^2$$

3.  $A = 5" \times 6"$ ,  $A = \underline{\hspace{2cm}}$

4.  $A = 7" \times 2"$ ,  $A = \underline{\hspace{2cm}}$

5.  $A = 14" \times 14"$ ,  $A = \underline{\hspace{2cm}}$

6. If the area in square inches of a block is 144 square inches and the length is 12 inches, what is the width?

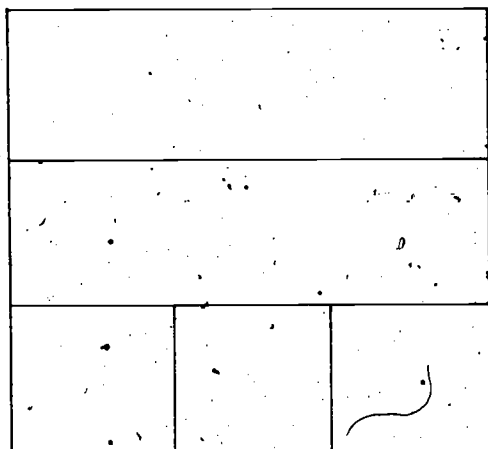
7.  $121 \text{ sq. in.} = s^2$ . What is the length of one side?

8.  $30 \text{ sq. in.} = 6 \times w$ , what is the width?

## Additional Area Problems

$$A = l \times w$$

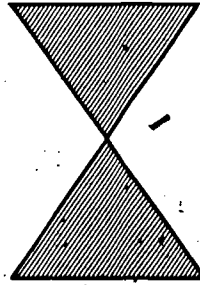
$$A = s^2$$



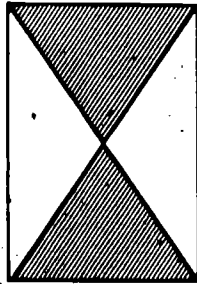
$$2 A = 14" \times 3"$$

$$3 A = 4 \frac{1}{3}^2$$

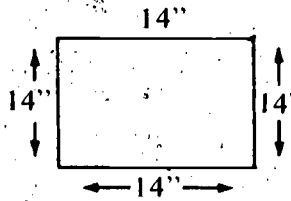
Find the area of



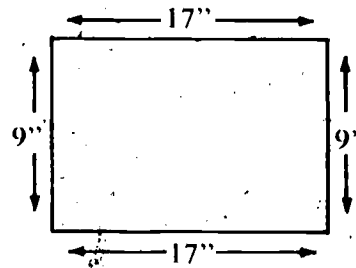
when the total



area of is  $A = 174''$  sq.



$A = ?$



$A = ?$

$A = 11'' \times 12''$ ,  $A =$

$A = 7'^2$ ,  $A =$

$A = 25'' \times 4''$ ,  $A =$

$A = 12'^2$ ,  $A =$

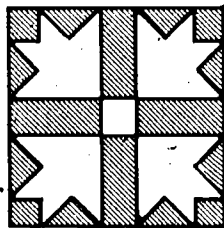
$175 = 1 \times 12$ ,  $1 =$

$A = 18'^2$

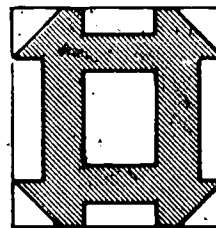
## Language Arts

Quilting terms you must know.

**Block:** Quilts are divided into blocks or patches to make sewing easier. The blocks are sewn separately, then all the blocks are sewn together to make an over all pattern. Oftentimes several blocks must be sewn together before the pattern is recognizable.



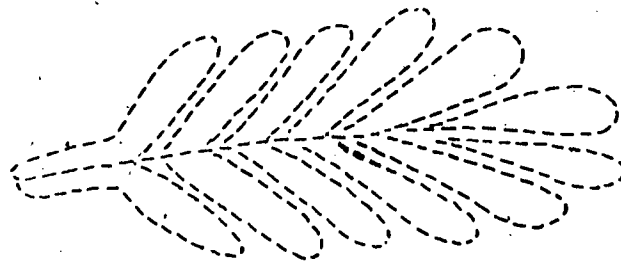
Cross and Crown  
Block



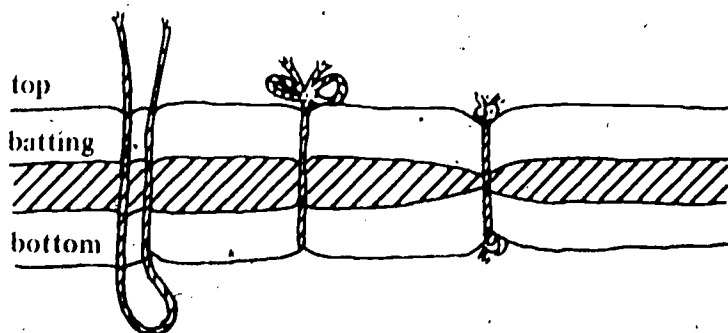
Monkey Wrench  
Block

**Pattern:** There are many traditional patterns – patterns for color and shape designs, and patterns for quilting (thread designs). That is, there is the pattern for the block and the pattern for the quilting of the block.

Traditional Feather Quilting  
Design

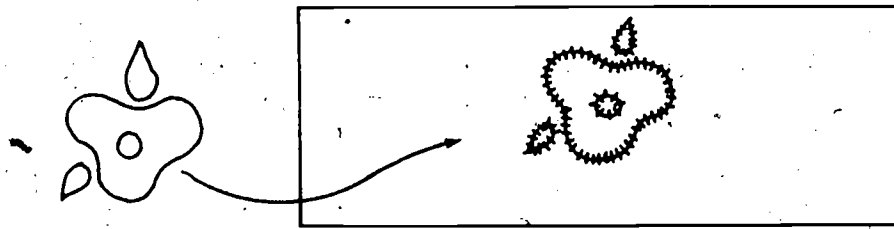


**Comforter:** A quilt of one color material (usually), inside batting, and backing, then quilted together. Comforters are more bulky than quilts, serving mainly as warmers.



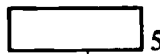
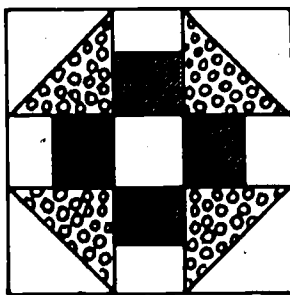
Yarn is usually inserted  
and tied.

**Applique** This is a "laid-on pattern in which pieces are put on top of the quilt and stitched onto the surface. The applique does not go through the three layers. Only the top layer is stitched.



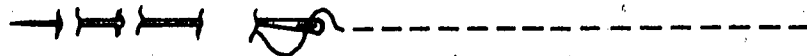
**Patchwork** These are pieced quilts in which small pieces are sewed together to make the design. The pattern is divided according to the pieces (shapes), and enough of each piece is cut for the entire quilt.

**Setting** This is sewing the blocks together to make the total design for the top. (See hemming stitch. We will make one block sewing the pieces together by hand. Since it takes a great deal of skill and practice to do this correctly, we will sew the blocks for our quilt by machine.)

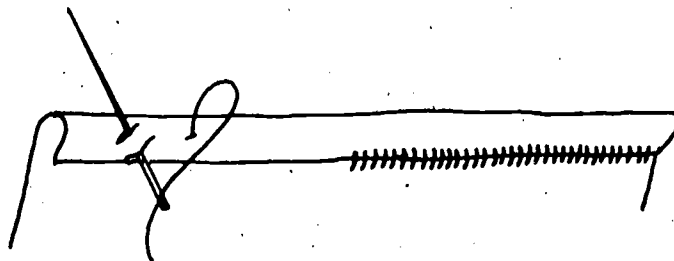


(For the one block of the Churn Dash the number of pieces shown are needed.)

**Running Stitch**



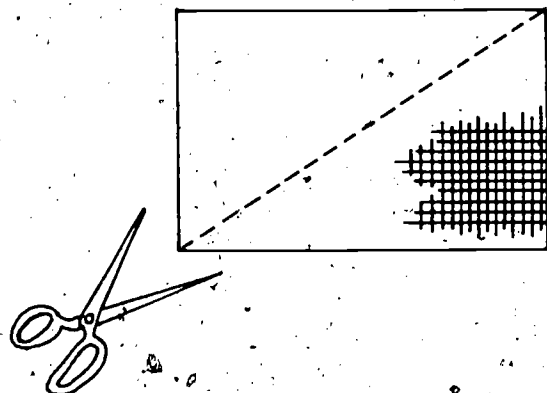
**Hemming Stitch**



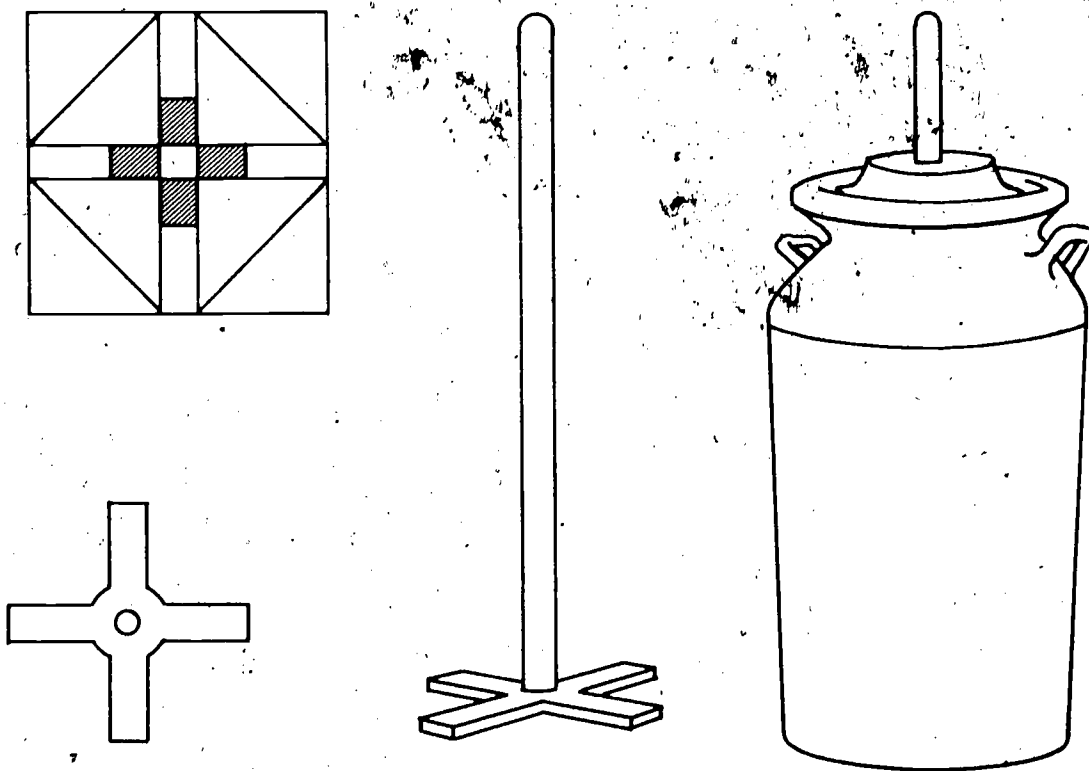
**Blocking** This means pressing the quilt before and after the blocks are set. A good quilter spends much time at the ironing board.

**Batting** This is filler for the inside of the quilt. Traditionally, fine cotton was used, but polyester is better because it does not mat up inside the quilting and form lumps. However, cotton is a natural fiber and also the lumps formed between the quilting stitches (after many washings) form part of the beauty of an old quilt.

**Bias** This is cutting across the weave diagonally. This uses the weave of the fabric to strengthen the piece. If cut with the weave the fabric tends to pull apart.

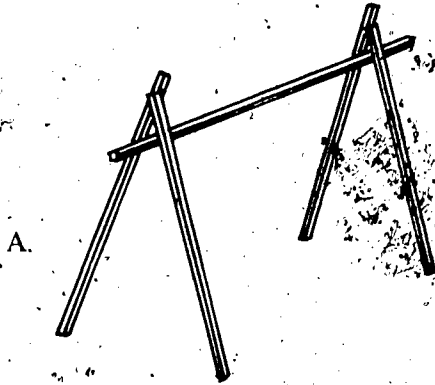


**Churn Dash** This is a traditional pattern for quilting. The Churn Dash pattern is taken from the tool of the same name. This dasher was made from wood and was used to churn the cream into butter – 'Come butter, come.'

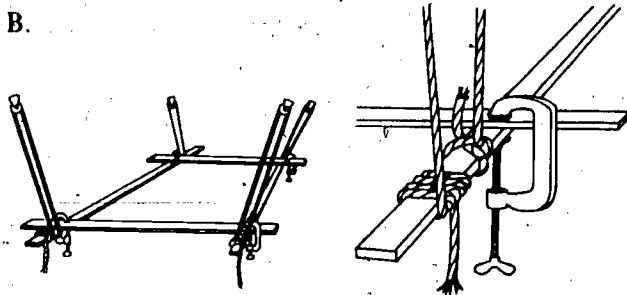




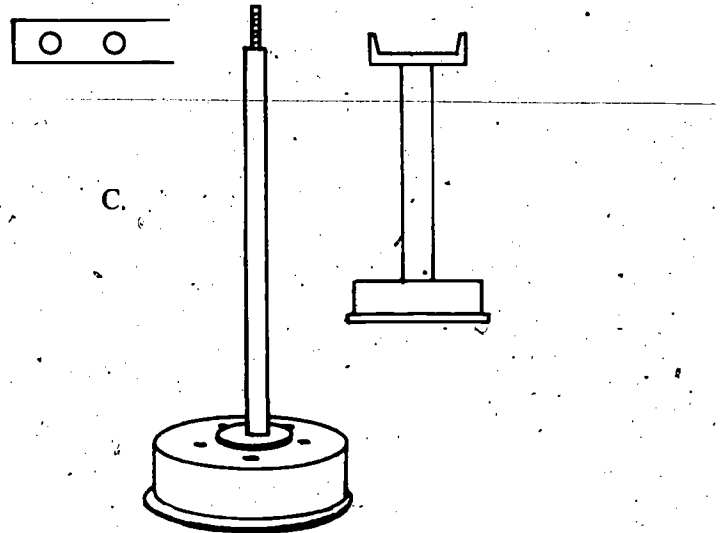
**Stretchers** These are frames for stretching the quilt for quilting. These come in two basic models – ones which hang from the ceiling and ones which are placed on legs on the floor. (Frames are available commercially. The simpler they are the better – allowing you to complicate them if necessary.)



A. Stretchers offer a challenge to the interested. The easiest (but not most efficient) way to construct a stretcher is to buy 2" x 2" 's and make two saw horses, leaving an opening at the top for insertion of the frame and clamping the stretcher frames with metal clamps. Then attach a piece of felt to the side (long) poles to which the quilt is sewn. The quilt is rolled until tight, then unrolled and rolled onto the other side as the quilting progresses.

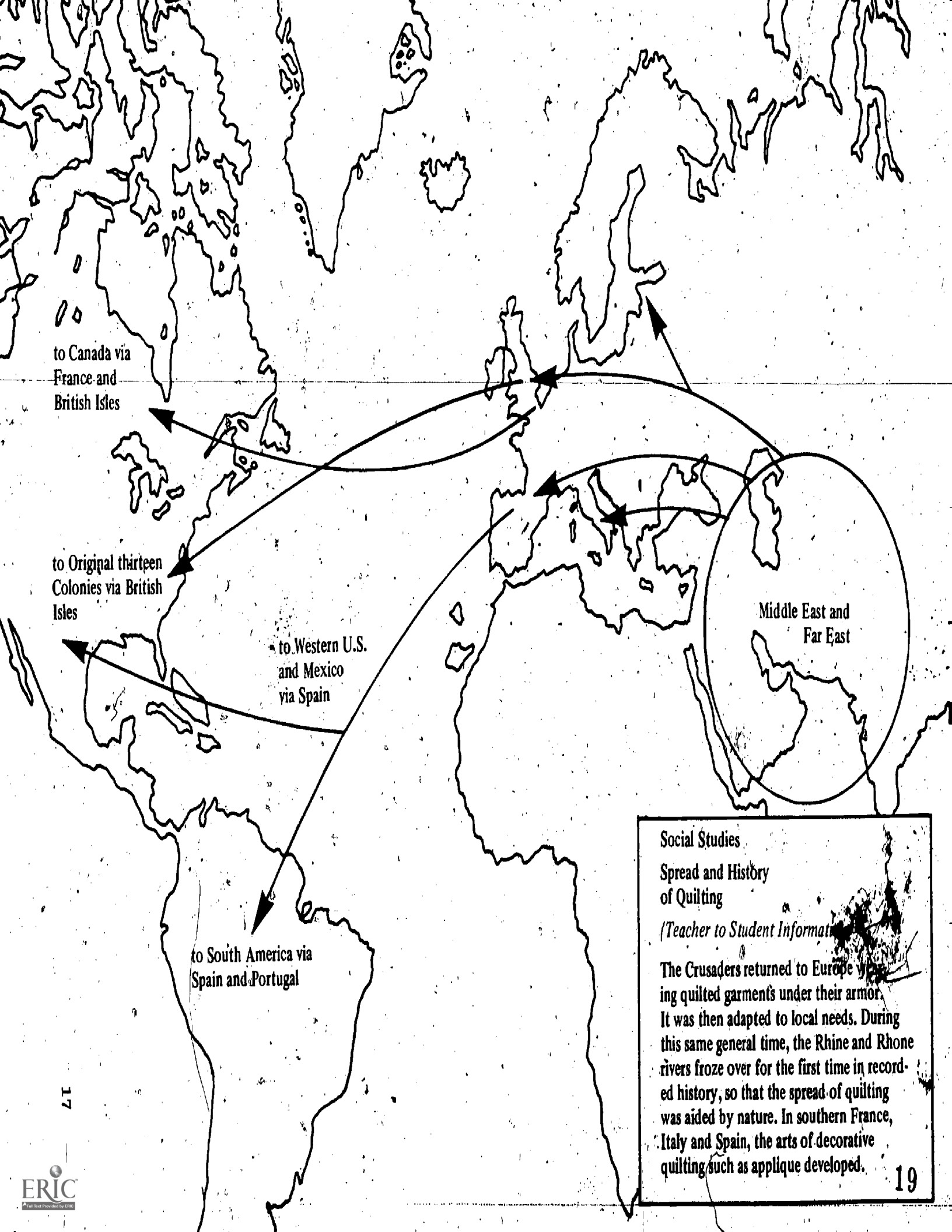


B. Stretcher frames get in the way – the solution – buy four small pulleys, attach them to the ceiling, suspend the stretcher frames from ropes and clamp them with metal clamps. When the day's quilting is completed, raise the frame to the ceiling.



C. Another method used by the Mountain quilters (built and perfected by Donald Moore and used by the Rising Fawn Quilters and Charles Counts) is to secure four old brake drums, fill them with cement and attach a metal pole in the center (should be welded) at the top which has been welded a large screw. Then drill holes in the wooden stretcher frames. These are placed so that the four screws at the top of each pole can be inserted through them.

**Quilting Bee** This is a gathering of people for quilting (sewing the three layers – the pieced top, the batting and the bottom solid piece – together).



to Canada via  
France and  
British Isles

to Original thirteen  
Colonies via British  
Isles

to Western U.S.  
and Mexico  
via Spain

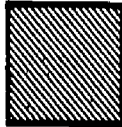
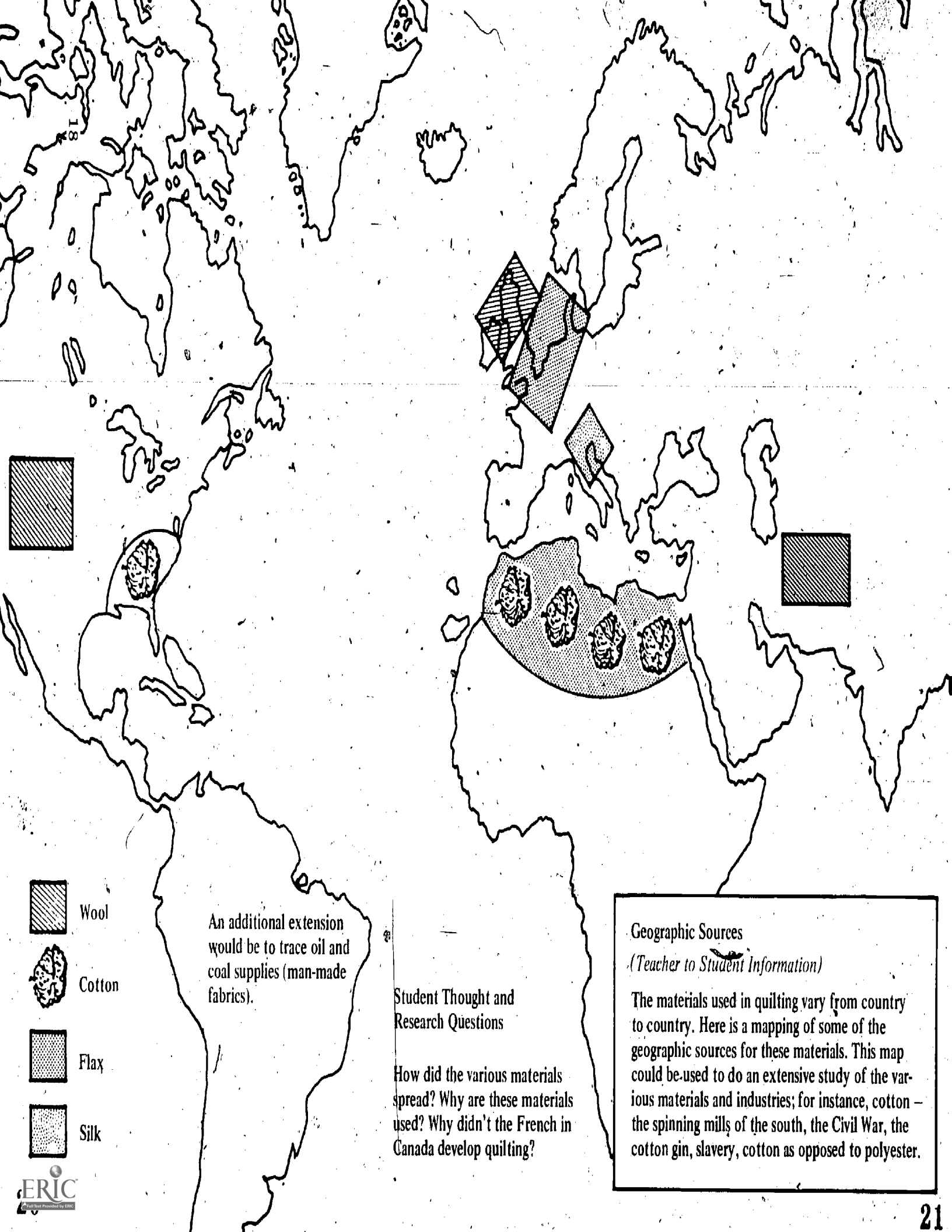
to South America via  
Spain and Portugal

Middle East and  
Far East

**Social Studies**  
**Spread and History**  
**of Quilting**

*(Teacher to Student Information)*

The Crusaders returned to Europe wearing quilted garments under their armor. It was then adapted to local needs. During this same general time, the Rhine and Rhone rivers froze over for the first time in recorded history, so that the spread of quilting was aided by nature. In southern France, Italy and Spain, the arts of decorative quilting such as applique developed.



Wool

Cotton

Flax

Silk

An additional extension would be to trace oil and coal supplies (man-made fabrics).

**Student Thought and Research Questions**

How did the various materials spread? Why are these materials used? Why didn't the French in Canada develop quilting?

**Geographic Sources**  
*(Teacher to Student Information)*

The materials used in quilting vary from country to country. Here is a mapping of some of the geographic sources for these materials. This map could be used to do an extensive study of the various materials and industries; for instance, cotton – the spinning mills of the south, the Civil War, the cotton gin, slavery, cotton as opposed to polyester.

## Art

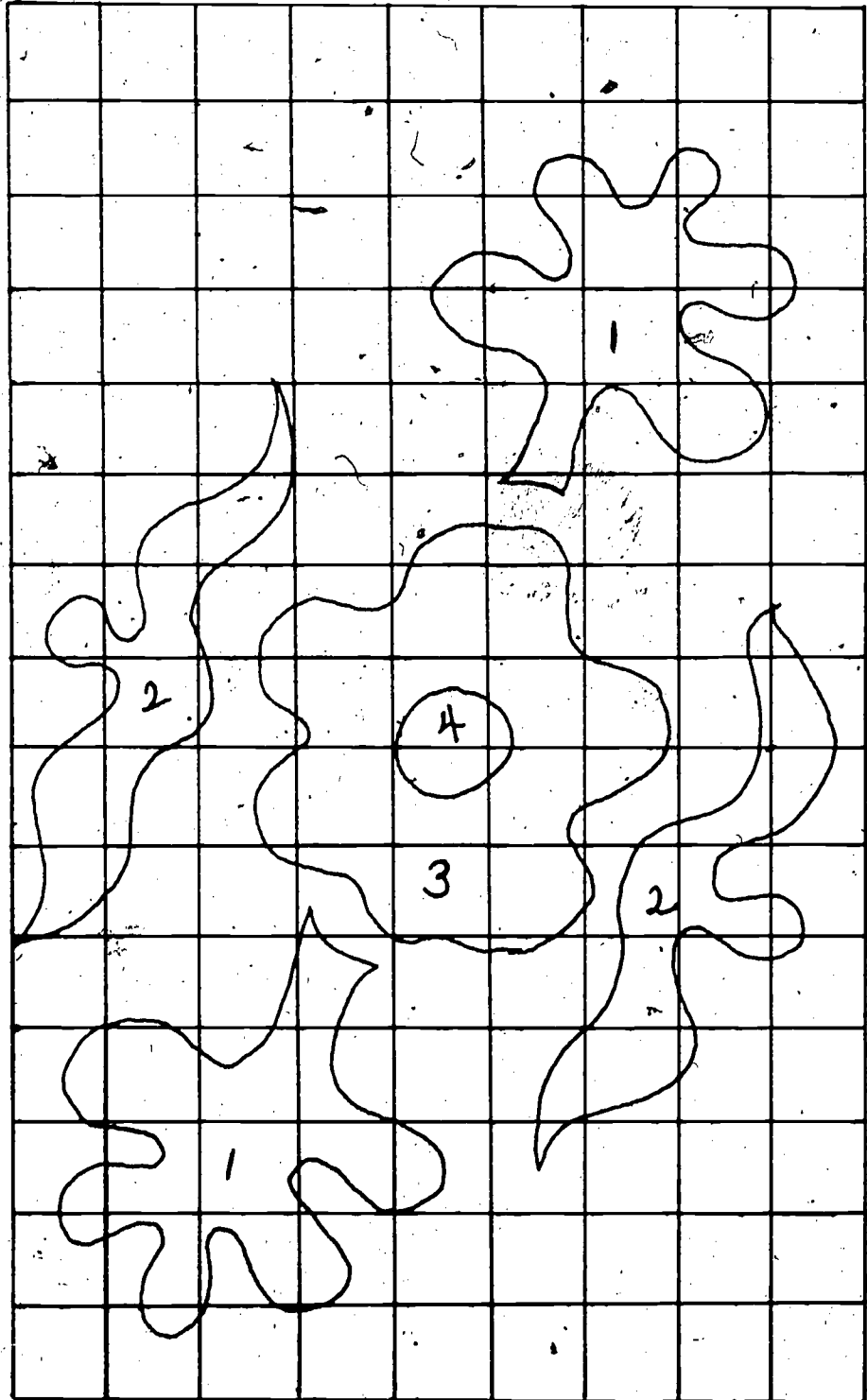
Transferring a pattern from smaller grid to a larger one. Use a ruler to make the grid on another sheet of paper. Make your grid one inch square. First, mark off the sheet into one inch squares. Second, draw the pattern on your paper block by block. After you have done this, compose a design of your own. Draw your design on your paper and then mark it off with lines as this is done.

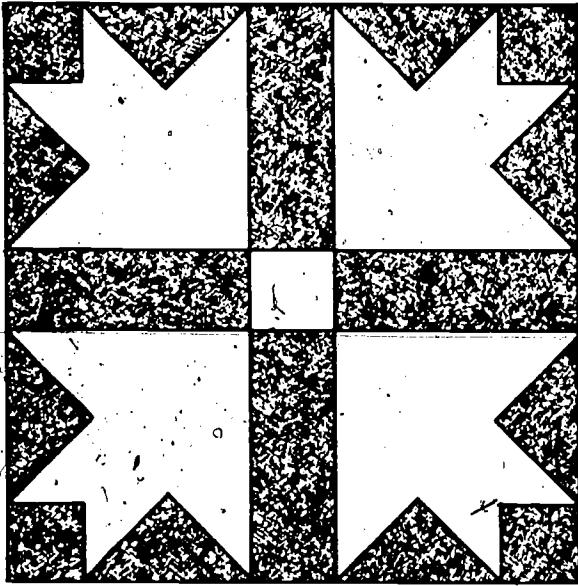
Make a legend, deciding what each section of your design will be colored, and number each section accordingly.

This pattern can then be cut out and appliqued onto a quilt.

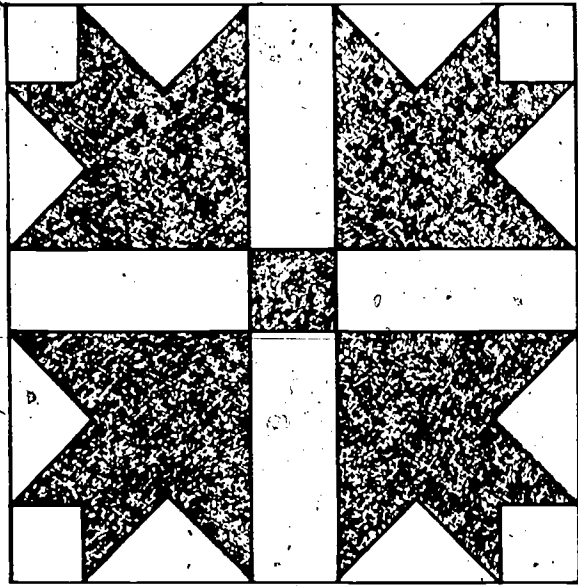
### Legend

1. Green
2. Red
3. Orange
4. Blue





Cross and Crown



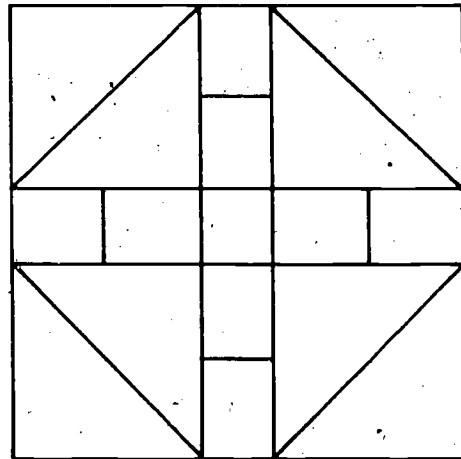
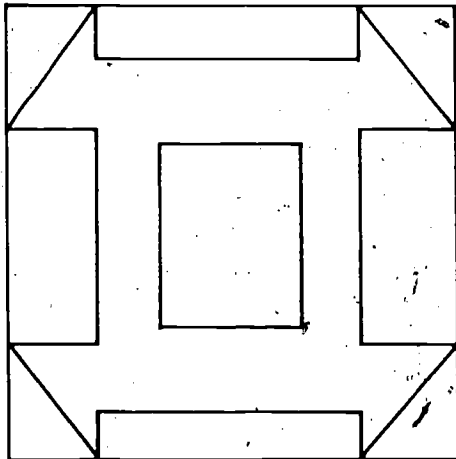
Goose Tracks

Here are two traditional patterns.

1. Describe how they are alike and how they are different.
2. Draw the pieces which make up the Goose Tracks pattern.
3. Number the pieces of each one for the block. (How many of a particular shape are needed?)

Here are two patterns. You know one. Label the one you know.

How is the other pattern different? Its name is Monkey Wrench.



In the space below, make a simple design for your own block. Then change it in some way and draw it again. Give it a name.

### **Tie Dying**

The easiest and best material for tie-dying is an inexpensive white sheet (50 percent cotton, 50 percent polyester). This material tends to take the dye better than any other with the exception of muslin (be sure to wash muslin several times before attempting to dye it).

Rit brand dye is easiest to find and use. Make several strong batches of various colors by combining two packages of the same color in a gallon of hot water for each color wanted. Put the dye on the stove on simmer or low, and cook the material in the bath for 15 to 30 minutes.

To tie the material before adding it to the dye bath, gather the piece at some point (tear the sheet into pieces for the different colors — after it is dyed it will be cut into pieces for the pattern) and tie it securely with string or yarn (see picture). An even simpler method is to tie the fabric itself into knots (very tightly). After the dyeing, hand ring the material, wash it thoroughly in cold water and hang it up to dry (if dried outside be sure the sun is not too bright). While still damp, iron the material. It is then ready for cutting and sewing.

Tie-dyed material mixed with various fabric scraps makes for a beautiful quilt. If the quilt is to be used (and washed) you may prefer to leave off the tie-dying.

## MATERIAL NEEDED FOR QUILTING

- White quilting thread (one spool per student)
- Very small needles (two to three per student)
- Sewing machines (if available)
- Fabric scraps (have students bring these from home – do not use stretch fabrics and do not mix fabrics)
- Several large sheets (50 percent cotton-50 percent polyester) – one should be saved whole for the back, the others are to be cut and dyed.
- Several packages of dye (purples, oranges, reds tend to take best, blues and greens are more difficult)
- Quilting frame
- Batting (rayon or dacron batting is excellent)
- Several pairs of scissors
- Patience and time

## NOTES TO THE TEACHER

The teacher should watch the students carefully to observe poorly learned or mislearned habits. Each child will have a different learning style – some can read and do, others are able to do, others are able to do after watching someone, etc. Help the child with his quilting. Insist that it be done correctly for the end product will not be worth the time spent making it.

The production of small pieces should be a prerequisite to the making of a quilt – one of the groups made small pillows before trying the quilt.

The child who has difficulty reading will have difficulty doing the quilt. Be patient. Show him over and over what to do. Vary your information and demonstrations so that he can select the information he needs. Give specific praise.

We were able to work much more quietly and attentively by playing some traditional Appalachian ballads softly in the background. Students were also encouraged to bring musical instruments such as guitars to play at breaks.

Have some alcohol on hand for pricked and bleeding fingers. Many experienced sewers use thimbles; we substituted tape for sore fingers.